

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XI

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SYNGONANTHUS ACIPHYLLUS (Bong.) Ruhl.

Kunth in Enum. Pl. 3: 578 (1841) cites Eriocaulon aciphyllum Bong. to Act. Petrop. 6 (1): 636, pl. 38. The illustration is apparently unpublished.

SYNGONANTHUS CAESPITOSUS (Wikstr.) Ruhl.

Kunth in Enum. Pl. 3: 574 (1841) gives three literature citations for Eriocaulon caespitosum Wikstr. These are Wikstr., K. Vet. Acad. Handl. 78, pl. 4 (1820), Roem. & Schult., Mant. 2: 469, and Bong., Act. Petrop. 6 (1): 628.

SYNGONANTHUS CAULESCENS (Poir.) Ruhl.

Kunth in Enum. Pl. 3: 577 (1841) cites Eriocaulon splendens Bong., a synonym of this species, to Act. Petrop. 6 (1): 633, with an apparently unpublished plate 66. He describes two varieties, but does not give them separate names. One is supposed to have lower stature and the other has very short or almost obsolete stems and a solitary peduncle. They are said to be from near Barbacena, Brazil.

SYNGONANTHUS CENTAUROIDES (Bong.) Ruhl.

Kunth in his Enum. Pl. 3: 578 (1841) cites Eriocaulon centauroides Bong. to Act. Petrop. 6 (1): 635, with an apparently unpublished plate 45. The type was collected at Serra da Lapa, Minas Geraes, Brazil.

SYNGONANTHUS CHRYSANTHUS (Bong.) Ruhl.

Kunth in his Enum. Pl. 3: 575 (1841) cites Eriocaulon chrysanthum Bong. to Act. Petrop. 6 (1): 628, with an unpublished plate 43 representing it. The type is from near Rio de Janeiro, Brazil.

SYNGONANTHUS CIRCINNATUS (Bong.) Ruhl.

Kunth in his Enum. Pl. 3: 577 (1841) cites Eriocaulon circinnatum Bong. to Act. Petrop. 6 (1): 633, with an apparently unpublished plate 39 to depict it. The type is from Serra da Lapa.

SYNGONANTHUS ELEGANS (Körn.) Ruhl.

Kuhlmann states that this plant is called "flor de Diamantina" in Brazil because of its abundance in the Diamantina district of Minas Geraes, and in the trade as "sempre-viva". He says (1951) that it has lost its popularity in the trade in Brazil recently. It is supplied commercially to the trade in the United States by "Praxedes Ribeiro, Av. Rio Branco 9 - S/119, Rio de Janeiro" and by "Alvaro Guieiro, Rua Francisco Sa 58, Diamantina, Minas Gerais", according to a letter received from

the American Embassy in Rio de Janeiro, written July 2, 1951. Although sold extensively in New York, it is very doubtful whether the plants are actually cultivated there, or, in fact, anywhere. It is most probable that all the commercial material is gathered from wild plants in Minas Geraes. The species is said to flower in April. Much of the commercially marketed material has the inflorescences dyed red, blue, purple, yellow, or green.

Additional citations: BRAZIL: Minas Geraes: Glaziou 20012 (Br, C, N); Mello Barreto 9674 [Herb. Jard. Bot. Belo Horiz. 24640] (N); Mendes Magalhães 1904 (Be--13885), 2074 [Herb. Jard. Bot. Belo Horiz. 42246] (N); Mexia 5735 (N, Qu, S); L. Riedel s. n. [Serra da Lapa] (N--photo of isotype, S--isotype, Z--photo of isotype); Williams & Assis 6911 (S). CULTIVATED: New York: Hub Floral Manufacturing Co. s.n. (N). Brazil (São Paulo): Moldenke & Moldenke 19937 (Es, N, Sm), 19938 (B, Es, F, Hw, Lm, Mg, Mr, N, No, Rs, S, Sm, Ss).

SYNGONANTHUS ELEGANS var. ELANATUS Ruhl.

The Glaziou collection cited below is usually found in herbaria under the names Paepalanthus elegans Kunth or Syngonanthus elegans (Bong.) Ruhl.

Additional citations: BRAZIL: Minas Geraes: G. Gardner 5282 (S); Glaziou 20013 (Br, C).

SYNGONANTHUS ELEGANTULUS Ruhl.

Material of this species has been widely misidentified as Paepalanthus elegans Kunth, P. niveus Kunth, and Syngonanthus niveus (Bong.) Ruhl. The Brussels sheet of Glaziou 16398, in fact, was identified as Paepalanthus elegans by Taubert and corrected to P. niveus by Ruhland! The labels made for the Macbride cotype photograph at the Chicago Natural History Museum read "Glaziou 16296" in error. The species is said to bloom in January.

Additional citations: BRAZIL: Minas Geraes: G. Gardner 5282, in part (N); Glaziou 15549 (Br), 16396 [Macbride photos 10682] (Br--cotype, N--fragment of cotype, N--photo of cotype), 16398, in part (Br, N), 17316 (Br); Magalhães Gomes 66 [Herb. Jard. Bot. Belo Horiz. 26610] (N).

SYNGONANTHUS EUSCHEMUS Ruhl.

Additional citations: BRAZIL: Goyaz: Glaziou 22300 [Macbride photos 10683] (Br--cotype, N--photo of cotype), 22301 (N--cotype, S--cotype). Pará: Sioli s.n. [Herb. Inst. Agron. Norte 29163a] (N).

SYNGONANTHUS FERTILIS (Körn.) Ruhl.

Literature: Malme, Phanerogamen 3: 10. 1933.

Additional citations: BRAZIL: Mattogrosso: J. G. Kuhlmann 1630 [Com. Lin. Teleg. 1630; Herb. Mus. Nac. Rio 47652 & 47653] (Ja, Ja, N); Malme 3342 (N, S, S); Weddell 3397 [no. 27] (Br--

cotype, N--photo of cotype, Z--photo of cotype).

SYNGONANTHUS FISCHERIANUS (Bong.) Ruhl.

Kunth in his Enum. Pl. 3: 574 (1841) cites the synonymous Eriocaulon fischerianum Bong. to Act. Petrop. 6 (1): 627, with an unpublished plate 29. Other synonyms are Paepalanthus nardi-folius Kunth, of which the type is Sellow 4957, and P. vaginatus Mart., of which the type is Clausen 46.

The species produces resplendent, straw-like, white flowers and grows in marshy campos and montane ditches. It has been collected at an altitude of 500 meters, blooming in April and July.

Additional citations: BRAZIL: Amazonas: Ule 7665 (N, W--1615007). Goyaz: Glaziou 22298 (Br, S). Mattogrosso: Kuntze s.n. [VII.92] (N). Minas Geraes: P. Clausen 46 (Br); Löfgren 362 (S); Mendes Magalhães 162 [Herb. Jard. Bot. Belo Horiz. 32594] (N); J. E. Oliveira 1317 [Herb. Jard. Bot. Belo Horiz. 45187] (N); Regnell III.1263 (S, S); Widgren 6 (S), 99 (S), 823 (S, S), s.n. [1845] (S), s.n. (S, S). Pará: Spruce s.n. [in vicinibus Santar-em, Aug. 1850] (N, S). Paraná: Dusen 7207 (S); Mattos 4436 (N). São Paulo: Brade 5532 (S), 5533 (S); Burchell 3782 (Br, N); W. Hoehne 766 (Wh, Wh); L. Riedel 1478 [Macbride photos 10684] (M, N--photo, S). State undetermined: Raben 966 (Br, E--photo, F--photo, N--photo, Z--photo); Sellow 4957 (Br, E--photo, F--photo, N--photo, Z--photo). BOLIVIA: Santa Cruz: Kuntze s.n. [VII.92] (N, N); Steinbach 5507 (D--763556, N).

SYNGONANTHUS FLAVIDULUS (Michx.) Ruhl.

Literature: Michaux, Fl. Bor.-Am. 2: 166. 1803; Pursh, Fl. Am. Sept. 1: 92. 1814; Elliott, Sketch Bot. S. C. & Ga. 2: 567. 1824; Ruhland in Engl., Pflanzenreich 4 (30): 256. 1903; Alain, Contrib. Ocas. Mus. Hist. Nat. Coleg. La Salle 7: 115. 1946; A. C. Martin, Am. Midl. Nat. 36: 533, pl. 4. 1946; Fernald, Rhodora 49: 128--129. 1947.

The species has been collected in anthesis also in July, October, and December, and in fruit in February, March, April, May, and September. It has been found on ancient sand-dunes, in roadside ditches, in low pinelands near swimming-pools, in pine woods, flatwoods, moist grassy openings in live oak hammocks, wet sandy meadows, moist pinebarrens, moist sedgy places, low black sandy muck near bays, and wet places in general.

Recorded common names include "buttons" and "pipewort". Martin in the reference cited above discusses the endosperm morphology, while Fernald gives a very detailed discussion of the supposed occurrence of the species in Virginia, a record apparently not substantiated by fact. Dowell 7140, cited below, is a depauperate specimen. Sheets number 186011 and 186012 in the Pomona College herbarium contain mixtures. The specimen on the former sheet is actually Eriocaulon septangulare With. and belongs on sheet 186012, collected by Brewer & Chickering at Island Pond, Vermont. The Ellis specimen from Georgia is errone-

eously mounted along with E. septangulare material on sheet 186012. It is hoped that this error will be corrected by the curators of that herbarium.

Specimens of this species are often found in herbaria under the synonymous designations of Eriocaulon flavidulum Michx., Dupatyia flavidula (Michx.) Kuntze, Dupotyia flavidula (Michx.) Kuntze, Paepalanthus flavidulus Kunth, and P. flavidus Kunth. Specimens are often mis-identified as Eriocaulon septangulare With., E. gnaphalodes Michx., Lachnocaulon anceps (Walt.) Morong, L. glabrum Körn., L. minus (Chapm.) Small, L. nudus Rhoads, and L. nusus Rhoads. The "Eriocaulon flavidulum" of Pursh, Fl. Am. Sept. 1: 92 (1814) is E. parkeri B. L. Robinson.

Additional citations: NORTH CAROLINA: Bladen Co.: Blomquist 5740 (H--19366). Brunswick Co.: R. K. Godfrey 48362 (No--17427), s.n. [Aug. 16, 1948] (No--17464). County undetermined: M. A. Curtis s.n. (D--752343). SOUTH CAROLINA: Florence Co.: Ravenel s.n. [Florence, July 1879] (Br). Lexington Co.: E. A. McGregor 257 (Du--75961). GEORGIA: Burke Co.: M. B. Ellis s.n. [Alexander] (Po--186011). Charlton Co.: E. E. Barker 8606 (Gu); W. H. Duncan 2050 (N); J. S. Harper 161 (Gu--16933), 402 (D--718638); Leeds 1285 (D--700887); Pyron & McVaugh 1495 (Gu--13936). Clinch Co.: D. E. Eyles 178 (Gu--28392). Lowndes Co.: Quarterman 1267 (Va). Ware Co.: J. S. Harper 41 (D--768586). Wayne Co.: Ruth s.n. [June 1893] (Ob--23922). FLORIDA: Alachua Co.: G. F. Weber s.n. [Gainesville, 3-28-28] (Fl--5440, Fl--5441); West & Arnold s.n. [Gainesville, 12 May 1939] (Fl--30617). Baker Co.: West & Arnold s.n. [Taylor, 25 Apr. 1940] (Fl--1104). Bay Co.: R. F. Martin 1707 (N). Bradford Co.: West & Arnold s.n. [Hampton, 15 May 1940] (Fl--32188). Brevard Co.: C. D. Mell s.n. [Indianola, Oct. 1, 1907] (Vt); Edw. Palmer 580 (Pr); Rhoads s.n. [Merritt, 4-2-1928] (Fl--5436, Fl--5437), s.n. [Merritt's Island, Apr. 2, 1928] (Fl--5439). Clay Co.: W. M. Canby s.n. [Magnolia, March 1858] (Pa), s.n. [Hibernia, March 1869] (Cm, Pa, Pr); Leeds 1286 (D--700886); Murrill s.n. [Keystone Heights, 28 Mar. 1939] (Fl--5407), s.n. [May 8, 1940] (H--61586). Collier Co.: C. C. Deam 58689 (Dm), 60549 (Dm, N), 66040 (Dm, Es, N). Dade Co.: A. P. Garber s.n. [Miami, June 1877] (Pa); Small & DeWinkeler 9505 (Fl--29138). De Soto Co.: H. H. Rusby s.n. [Arcadia, Apr. 1, 1935] (N). Duval Co.: Clausen & Trapido 3290 (Ba); Curtiss 4140 (Du--76747, Es), 4786 (Al, Es), s.n. [near Jacksonville, June] (Cm); W. H. Duncan 1271 (Bt--57960, Gu--18509); Lighthipe s.n. [South Jacksonville, April 13, 1897] (Ur, Ur). Flagler Co.: West & Arnold s.n. [Andalusia, 18 Apr. 1940] (Fl--18646). Franklin Co.: A. W. Chapman s.n. [1860] (Ms); Saurman s.n. [Apalachicola, 1867] (Pa, Pr); A. Wood s.n. [Apalachicola, May 1857] (Pa). Gilchrist Co.: Martin, De Vall, & Arnold s.n. [Trenton, 19 May 1940] (Fl--32179). Hernando Co.: Murrill s.n. [Brooksville,

5/9/39] (Fl--24255). Highlands Co.: C. C. Deam 64249 (No--21314); Phillips & Buswell s.n. [April 9, 1939] (Bu); Small & DeWinkeler s.n. [Kuhlman, April 25, 1921] (H--42908, We). Hillsborough Co.: Britton, Britton, & Shafer 107 (Cm, Ur). Indian River Co.: Mac Daniels s.n. [Vero Beach, April 16, 1936] (Ba). Jefferson Co.: Lighthipe s.n. [Lloyd's, April 10, 1891] (Ur). Lake Co.: A. S. Hitchcock 10873 (Po--186007), s.n. [vicinity of Eustis, June & July 1894] (Fl--5452, Ka); Nash 143 (Es), 1944 (Es); M. E. B. Norton 1889 (Gg--105755). Lee Co.: H. C. Beardslee s.n. [Feb. 25, 1918] (Ob--94497); Buswell s.n. [April 24, 1932] (Bu); C. C. Deam 60668 (Dm, N); H. N. Moldenke 688 (Go, H--9662, Ur), 940 (Go, H--241, Ob--23925, Ur); J. P. Standley 10 (Ur). Leon Co.: A. Wood s.n. [Tallahassee] (Pa). Manatee Co.: L. H. Bailey 6660 (Ba); Cuthbert 1489 (Fl--5448), 1516 (Fl--5445), s.n. [Bradentown, June 22, 1916] (Fl--5450), s.n. [Bradenton, March 13, 1917] (Fl--5447), s.n. [Bradentown, April 6, 1917] (Fl--5446, Fl--5449); Dowell 7139 (Mb), 7440 (Mb); Tracy 6643 (Cm). Marion Co.: J. A. Drushel 10135 (Gg--276709); Groves s.n. [Citra, Feby. 1894] (Al). Martin Co.: W. F. Buchanan s.n. [March 23, 1938] (Gu--16011, Gu--16012); P. O. Schallert s.n. [5/2/41] (N). Nassau Co.: L. H. Bailey 6865 (Ba). Okeechobee Co.: Buswell s.n. [May 25, 1935] (Bu). Orange Co.: H. C. Beardslee 127 (Ob--94493); F. S. Blanton 6491 (Ba, Duu--226796, Gg--223695); Bright 3653 (Cm); W. M. Canby s.n. [Orlando, Mch. 18, 1890] (Ur); P. O. Schallert 6116 (Ur). Osceola Co.: Bitting 241 (Ga), 242 (Fl--5451); Moyer 277 (No--2648); P. O. Schallert s.n. [5/2/41] (Gg--305862); Singletary 153 (H--46214). Palm Beach Co.: W. B. Fox s.n. [Apr. 2, 1945] (No--15811); F. C. Randolph 17 (Ba). Pinellas Co.: Allabach s.n. [Clearwater, Feb. 10, 1939] (Cm); M. S. Bebb s.n. [Clear Water, 1894] (Ur); S. M. Deam 4069 (Dm, Po--267594); Tracy 7588 (Cm, Es); M. H. Williams s.n. [Feb. 4, 1926] (H--25700). Polk Co.: C. C. Deam 66089 (Dm); Jennings & Jennings s.n. [s.e. of Ft. Meade, late Dec. 1919] (Cm). Putnam Co.: J. H. Barnhart 2116 [Herb. Barnhart 2562] (N); Laessle s.n. [Welaka, 5/3/40] (Fl--32178); West & Arnold s.n. [East Palatka, 7 June 1940] (N). Saint Johns Co.: W. F. Buchanan s.n. [March 24, 1938] (Gu--16013, H--52325); Doggett s.n. [April 1869] (Al); M. C. Reynolds s.n. [St. Augustine, Mar.-July 1875] (Pr), s.n. [St. Augustine, April] (Ur); West & Arnold s.n. [St. Augustine, 7 June 1940] (N). Sarasota Co.: B. H. Smith s.n. [March 12, 1904] (H--23030). Seminole Co.: H. C. Beardslee s.n. [Longwood, April 1928] (Ob--94495); H. C. Beardslee, Jr., 37 (Ob--98698); Fallass s.n. [Feb. 28, 1911] (Se--3904); Foster, Smith, & Smith s.n. [Plant. Exsicc. Gray. 1334] (Bl--49511, Gu--23855, Ms, Ur). Sumter Co.: Scott s.n. [April 1, 1935] (H--28608). Union Co.: Murrill s.n. [April 12, 1940] (H--61270). Volusia Co.: H. C. Beardslee s.n. [New Smyrna, Mch. 1925] (Ob--94496); E. Brainerd

s.n. [March 28, 1909] (Vt); Dowell 7352 (Mb), 7381 (Mb); Eastwood s.n. [Holly Hill, Mar. '90] (Bl--16616); Noble s.n. [Lake Helens, 1905] (Po--267593). County undetermined: Bird s.n. [Summer, 1933] (Dp--2925); A. W. Chapman s.n. [Florida] (Pa, Pr, Pr, Pr); Fell s.n. [1873] (Pr); Herb. Univ. Vermont s.n. (Vt); A. P. Garber s.n. [1877; Herb. Marie-Victorin 43452] (Vi); La Force s.n. [Lake Findlay, April 24, 1921] (Al); Lighthipe s.n. [St. Nicholas, May 4, 1896] (S); I. S. Smith s.n. [May 1894] (Ob--58173); Van Hynning s.n. [Paradise, April 3, 1924] (Ob--23919). ALABAMA: Baldwin Co.: C. T. Mohr s.n. [June 14, 1880] (Du--76748). LOCALITY OF COLLECTION UNDETERMINED: H. C. Beardslee s.n. ["Painesville, Ohio"] (Ob--23923); A. W. Chapman s.n. [Southern Flora] (Ms, Pr); D. N. Dean s.n. (Ms); Herb. L. H. Bailey s.n. (Ba).

SYNGONANTHUS FLAVIPES Moldenke

Additional citations: VENEZUELA: Amazonas: Maguire, Cowan, & Wurdack 30465 (N--type, Ve--isotype).

SYNGONANTHUS FUSCESCENS Ruhl.

Additional citations: BRAZIL: Minas Geraes: Sena 14569 [Macbride photos 10685] (N--photo of type).

SYNGONANTHUS GLANDULIFER Alv. Silv.

Additional citations: BRAZIL: Minas Geraes: Mendes Magalhães 4336 [Herb. Jard. Bot. Belo Horiz. 45168] (N); Silveira 549 [Herb. Marie-Victorin 12429] (N--photo of isotype, Vi--isotype, Z--photo of isotype).

SYNGONANTHUS GLANDULOSUS Gleason

The species has been collected at 1520 meters altitude in Venezuela, blooming in September. Steyermark reports the common name of "guanak" for it and states that the natives boil the entire plant for the treatment of toothache. The Rombouts collection cited below was identified as S. caulescens by Vittien.

Additional citations: VENEZUELA: Bolívar: Steyermark 58621 (N, S). SURINAM: Rombouts 556 (N). BRAZIL: Amapá: Black 49-8256 (N). Amazonas: Luetzelburg 20940 [Herb. Mus. Nac. Rio Janeiro 47709] (Ja).

SYNGONANTHUS GOYAZENSIS (Körn.) Ruhl.

Additional citations: BRAZIL: Goyaz: G. Gardner 4384 [Macbride photos 10696] (N--photo of type, S--isotype); Glaziou 22310 (Br, N, S). Minas Geraes: J. E. Oliveira 116 [Herb. Jard. Bot. Belo Horiz. 32601] (N).

SYNGONANTHUS GRACILIS (Körn.) Ruhl.

Literature: Kunth, Enum. Pl. 3: 578 (1841); Plantae Hasslerianae 11: 256 (1903); Malme, Phanerogamen 9 (1933); Luetzelburg,

Estudo Botânico do Nordeste 3: 149 & 151 (1923).

Kunth cites the synonymous Eriocaulon gracile Bong. to Act. Petrop. 6 (1): 634, with an unpublished plate 46, the type having been collected in dry shady places on Mount Itacolumi. Other synonyms are Paepalanthus eriophyllus Mart. and Syngonanthus eriophyllus (Mart.) Ruhl., of which Wulfschlägel 762 is the type.

Luetzelburg records S. gracilis from Brejo do Correiro in southern Piauí, where he says it is typical of the carrasco and frequent in the brejo. It has been collected at altitudes from 450 meters in Colombia to 1980 meters in Venezuela, blooming in February, August, September, October, and November. It is found in wet depressions among sand-dunes, in moist depressions in llanos, on large mesas, and locally frequent in moist sand among rocks. Steyermark 59196 and 62719 were originally identified as this species, too, but prove to be S. biformis (N. E. Br.) Gleason instead. Cuatrecasas 6973, originally distributed as S. gracilis, is actually the type collection of S. vaupesanus Moldenke. The Spruce 1502 specimen cited below is very immature and does not match well other material of this species. Specimens of Maguire 29267 are said to be also in the Belém, Kew, Chicago Natural History Museum, and United States National Museum herbaria.

Some specimens of this species have been mis-identified as Eriocaulon filiforme Bong.

The several varieties proposed by Herzog, Ruhland, and Silveira are poorly defined and need critical study.

Additional citations: COLOMBIA: Méta: Cuatrecasas 7884 (N); F. W. Pennell 1427 (E--844006, F--485393). Vaupés: P. H. Allen 3184 (E); R. E. Schultes 5443 (W--2048149), 5837 (N). VENEZUELA: Amazonas: B. Maguire 29267 (N, Ve); Steyermark 58162 (N), 58197 (N). Bolívar: Lasser 1738 (N), 1803 (N, W--1901899). BRITISH GUIANA: Maguire & Fanshawe 23180 (N), 23181 (N), 23245 (N), 23246 (N); A. C. Smith 2173, in part (S). SURINAM: Lanjouw & Lindeman 128 (N), 3013 (N); Moldenke & Moldenke 19580 (Es, Lg, Mg, N, No, Ot, Sm); Wulfschlägel 762 (Br, N). BRAZIL: Amazonas: Luetzelburg 20687 [Herb. Mus. Nac. Rio Janeiro 47711] (Ja), 20938 [Herb. Mus. Nac. Rio Janeiro 47710] (Ja), 21004 [Herb. Mus. Nac. Rio Janeiro 47719] (Ja), 21289 [Herb. Mus. Nac. Rio Janeiro 47714] (Ja); Spruce 1502 (S). Minas Geraes: P. Clausen 7 (Br), 44 (Br, N), 164 (Br), 206 (Br), s.n. [Aug.-April 1840] (Br); Mendes Magalhães 384 [Herb. Jard. Bot. Belo Horiz. 34280] (N). Pará: Black 48-3526 (Be--38012), 50-8688, in part (N); Murça Pires 1271 (Be--37045); Sioli s.n. [Herb. Inst. Agron. Norte 29158] (N). Rio Branco: Black 51-12593 (N), 51-13202 (N), 51-13766 (N). Santa Catharina: Reitz 4735 (Z). State undetermined: G. Gardner 5281 (N). URUGUAY: Rosengurt B.1103 (W--1694991).

SYNGONANTHUS GRACILIS var. AMAZONICUS Ruhl.

The specimen cited by Ruhland from "Marajo" is from Marajo Is-

land, Pará, Brazil.

Additional citations: BRAZIL: Goyaz: Murça Pires & Black 2396 (N). Maranhão: Murça Pires & Black 2537 (N). Mattogrosso: Lindman A.3277 (S, S). Pará: Burchell 8911 (Br--cotype, E--photo of cotype, F--photo of cotype, N--cotype, N--photo of cotype, Z--photo of cotype). Rio Branco: Black 51-12561 (N).

SYNGONANTHUS GRACILIS var. AUREUS Ruhl.

This trinomial was originally published as S. gracilis var. aurea Ruhl. It is written in the same way in Plantae Hasslerianae 11: 256 (1903). The New York Botanical Garden's sheet of Malme 1653 is mixed with Xyris sp. It was originally identified as var. olivaceus Ruhl., while Glaziou 15680 was distributed as var. glabriusculus Ruhl.

Additional citations: VENEZUELA: Falcón: A. Hernández 19 [Herb. Nac. Venez. 18471] (N, Ve). BRAZIL: Amazonas: Black 48-3039 (Be--36941, N); T. Guedes 76 (Be--43299); Ule 7665 (S). Goyaz: Burchell 7177 (Br--cotype, T--cotype); Macedo 3333 (N), 3355 (N). Mattogrosso: Malme 1576 (S, S), 1653 (N, S), 1653b (S), 3507 (S). Minas Geraes: G. Gardner 5270 [Herb. Mus. Nac. Rio Janeiro 49126] (Ja--cotype, N--cotype, S--cotype); Glaziou 15680 (Br--cotype, N--cotype). Piauí: G. Gardner 2748 bis (N). São Paulo: L. Riedel 3304 (N).

SYNGONANTHUS GRACILIS var. GLABRIUSCULUS Ruhl.

This trinomial was originally published by Ruhland as S. gracilis var. glabriuscula.

The variety is described as having white flowers, found in the Vellozia association, and frequent on open banks, at altitudes of 200 to 1980 meters, blooming in January, August, September, and December. Specimens of Maguire & Politi 27917 are said also to be in the Belém, Kew, Chicago, and Washington herbaria.

Additional citations: VENEZUELA: Amazonas: Maguire, Cowan, & Wurdack 30714 (N); Maguire & Politi 27917 (N, Ve); Steyermark 57804 (N), 58184 (N, S). BRAZIL: Bahia: Martius 1083 (M--cotype). Minas Geraes: P. Clausen s.n. [1840] (S); Glaziou 17308 (Br), s.n. (N); Ule 2721 [Herb. Mus. Nac. Rio Janeiro 47754] (Ja, N). São Paulo: Löfgren 1108 (S).

SYNGONANTHUS GRACILIS var. HIRTELLUS (Steud.) Ruhl.

Steyermark 57814, originally identified as this variety, is actually S. simplex (Miq.) Ruhl.

Additional citations: BRAZIL: Goyaz: Weddell 2136 (Br--cotype, E--photo of cotype, F--photo of cotype, N--photo of cotype, Z--photo of cotype); J. E. Pohl s.n. [Lagem] (Br--cotype, E--photo of cotype, F--photo of cotype, N--cotype, N--photo of cotype, Z--photo of cotype). Maranhão: Murça Pires 2266 (N); Murça Pires & Black 2249 (N), 2251 (N), 2266 (N). Pará: Murça Pires & Silva 4204 (N).

SYNGONANTHUS GRACILIS var. KOERNICKEANUS Ruhl.

Synonyms include Limnoxeranthemum pubescens Salz., of which the Salzmann specimen cited below is probably the type, Paepalanthus filiformis var. minor Mart., of which the Clausen & Riedel specimen cited below is probably the type, and Syngonanthus eriophyllus var. glandulifera Ruhl., of which Wulfschlägel 763 is the type. The Brussels sheet of Weddell 552, cited below, was originally identified as Paepalanthus brizoides Kunth.

The variety has been collected in anthesis in August & April.

Additional citations: SURINAM: Wulfschlägel 763 (Br, E—photo, F—photo, N, N—photo, Z—photo). BRAZIL: Amazonas: Luetzelburg 21003 [Herb. Mus. Nac. Rio Janeiro 47718] (Ja, N), 21132 [Herb. Mus. Nac. Rio Janeiro 47712] (Ja, N, S), 21150 [Herb. Mus. Nac. Rio Janeiro 47708] (Ja, N), 21156 [Herb. Mus. Nac. Rio Janeiro 47689] (Ja, N). Bahia: Salzmann s.n. (E). Goyaz: Burchell 6917 (Br). Maranhão: Murça Pires & Black 2198 (N). Minas Geraes: Clausen & Riedel s.n. [Caxoeira do Campo, April 1839] (Br); L. Riedel 2304 (N—photo of cotype, S—cotype, Z—photo of cotype). Pará: Murça Pires & Silva 4263 (N); Spruce s.n. [prope Santarem, Aug. 1850] (S). Rio de Janeiro: Weddell 552 [34] (Br, N—photo, Z—photo). São Paulo: L. Riedel 557 (M—cotype, N—photo of cotype, S—cotype, S—cotype, Z—photo of cotype).

SYNGONANTHUS GRACILIS var. LUETZELBURGII Herzog

This variety is recorded by Luetzelburg in his Estudo Botanico do Nordeste 3: 149 & 151 (1923) from Vao do Faria, in southern Piauí, where it is said to be typical of the carrasco.

SYNGONANTHUS GRACILIS var. OLIVACEUS Ruhl.

Additional citations: BRAZIL: Amazonas: Spruce 1502 (S). Goyaz: J. E. Pohl s.n. [ad Rio Riachao, 1839] (Br—cotype, N—cotype, N—photo of cotype, Z—photo of cotype). Minas Geraes: Widgren 9 (S—cotype), 826 (S—cotype), s.n. [1845] (N—cotype, S—cotype), s.n. (S—cotype).

SYNGONANTHUS GRACILIS var. PALLIDUS Ruhl.

This trinomial was originally published by Ruhland as S. gracilis var. pallida.

The plant has been collected at 320 meters altitude, blooming in November.

Additional citations: COLOMBIA: Méta: Cuatrecasas 7884 (W—1796748).

SYNGONANTHUS GRACILIS var. SETACEUS Ruhl.

A synonym is Paepalanthus oxycnemis Mart., of which the Luschnath specimen cited below is probably type.

Additional citations: BRAZIL: Minas Geraes: Luschnath s.n. [Campos bravos, 1834] (Br, N).

SYNGONANTHUS GRACILIS var. TENUISSIMUS Ruhl.

Additional citations: BRAZIL: Minas Geraes: Regnell III.1266 (N--cotype, N--photo of cotype, S--cotype, S--cotype, Z--photo of cotype), III.1801 (S--cotype, S--cotype).

SYNGONANTHUS HABROPHYUS Ruhl.

Additional citations: BRAZIL: Federal District: Brade 11004 [Herb. Mus. Nac. Rio Janeiro 26708] (Ja, N). Minas Geraes: Mello Barreto 8905 [Herb. Jard. Bot. Belo Horiz. 25851] (N, N); Sampaio 6704 [Herb. Jard. Bot. Belo Horiz. 12232] (N, S). Rio de Janeiro: Glazion 6449 [Macbride photos 10687] (N--photo of type).

SYNGONANTHUS HELMINTHORRHIZUS (Mart.) Ruhl.

Synonyms include Paepalanthus helminthorrhizus Mart., P. helminthorrhizus var. α Körn., P. helminthorrhizus var. β Körn., Syngonanthus glandulosa Herzog, and S. glandulosus Herzog (not Gleason).

The Brade 6585, of which a photograph is cited below, is said to be deposited in the Munich herbarium.

Additional citations: BRAZIL: Goyaz: Glazion 22313 (Br, S); Macedo 1903 (N), 3341 (N); J. E. Pohl 3302 (Br). Matto Grosso: Solos 241 [Herb. Inst. Biol. S. Paulo 2752] (N). Minas Geraes: G. Gardner 5264 [Macbride photos 10688] (N--photo); Mello Barreto 9495 [Herb. Jard. Bot. Belo Horiz. 24791] (N). São Paulo: Brade 6585 [Macbride photos 18743] (N--photo), s.n. [Herb. Inst. Biol. S. Paulo 6585] (N); Burchell 5206 (Br); W. Hoehne 1868 (N); Moldenke & Moldenke 19642 (Es, Lg, Mg, Mr, N, No, Ot, S, Sm), 19902 (Es, F, Lg, Mg, Mr, N, No, Ot, S, Sm); L. Riedel 2202 (M--cotype, N--photo of cotype, S--cotype, Z--photo of cotype). PARAGUAY: Hassler 11427 (S).

SYNGONANTHUS HETEROPEPLOIDES Herzog

The species has been collected at an altitude of 200 meters in Venezuela, blooming in August.

Additional citations: VENEZUELA: Amazonas: Steyermark 57848 (N, S). BRAZIL: Amazonas: Luetzelburg 21991 [Macbride photos 18745] (N--photo of type).

SYNGONANTHUS HETEROTRICHUS Alv. Silv.

Additional citations: BRAZIL: Minas Geraes: Silveira 379 [Herb. Marie-Victorin 12437] (N--photo of isotype, Vi--isotype).

SYNGONANTHUS HUBERI Ruhl.

The species is mentioned in Gleason's Tyler Duida Report, page 327 (1931). The specimen cited by Silveira from "Marajo" is from Marajo Island, Pará, Brazil. The species is described as a submerged plant, found at altitudes of 220 to 320 meters, blooming in September and November.

Additional citations: COLOMBIA: Méta: Cuatrecasas 7879 (N, W--1774231), 7886, in part (N); Triana 1023.3 (Hn). Vaupés: Cuatrecasas 6982 (N, N); P. H. Allen 3211a (W--1951974). BRITISH

GUIANA: A. C. Smith 2112 (S). BRAZIL: Amazonas: Luetzelburg 22160 [Herb. Mus. Nac. Rio Janeiro 47736] (Ja), 22184 [Herb. Mus. Nac. Rio Janeiro 47737] (Ja), 23739 [Herb. Mus. Nac. Rio Janeiro 47682] (Ja), 23760 & 23761 [Herb. Mus. Nac. Rio Janeiro 47657] (Ja, N). Pará: Huber 173 [Macbride photos 10689] (N--photo of type); Sampaio 5460 [Herb. Mus. Nac. Rio Janeiro 18739] (Ja, N), 5460a [Herb. Mus. Nac. Rio Janeiro 18740] (Ja, N).

SYNGONANTHUS HUMBERTI Moldenke

The species is found in forests and on the edges of lakes, at altitudes of 860 to 1600 meters, blooming in January, August, and October.

Additional synonyms: MADAGASCAR: Alleizette s.n. [Ambatolaona X.1905] (P), s.n. [Mandraka, Août 1906] (P), s.n. [Andringitra, Jan. 1916] (P); Humbert 3487 (N--fragment of type, N--isotype, P--type), 11138 (N, P); Perrier de la Bâthie 7253 (P).

SYNGONANTHUS HUMBOLDTII (Kunth) Ruhl.

A synonym is Paepalanthus humboldtii Kunth. Specimens are sometimes mis-identified as P. fasciculatus (Rottb.) Körn. The species has been collected at 270 meters altitude, blooming in November.

Additional citations: COLOMBIA: Vaupés: Cuatrecasas 7693 (N, N); Idrobo & Schultes 657 (W--2029520). VENEZUELA: Amazonas: Humboldt & Bonpland s.n. [Herb. Willdenow 2375; Macbride photos 10664] (N--photo of type). Bolívar: Lasser 1762 (N).

SYNGONANTHUS HUMBOLDTII var. ELONGATUS Moldenke

Isotypes are said to be deposited also in the Kew, Chicago, and Washington herbaria.

Additional citations: VENEZUELA: Amazonas: Maguire, Cowan, & Wurdack 30558 (N--type, Ve--isotype).

SYNGONANTHUS HUMBOLDTII var. GLANDULOSUS Gleason

This plant is said to be the dominant savanna herb in wet savannas northwest of the base of Cerro Moriche, Amazonas, Venezuela. It has been collected at altitudes of 100 to 1100 meters and in anthesis in January and August. It has been mis-identified as Paepalanthus humboldtianus Kunth, Syngonanthus humboldtii (Kunth) Ruhl., and S. verticillatus (Bong.) Ruhl. Additional specimens of Maguire, Cowan, & Wurdack 30985 are said to be in the Chicago and Washington herbaria. The original collection is Tate 1308, from Amazonas, Venezuela.

Additional citations: VENEZUELA: Amazonas: Holt & Gehriger 234 (Cm, N, Ve); Maguire, Cowan, & Wurdack 30985 (N, Ve); Steyermark 57857 (N, S). Bolívar: Cardona 267 (Ve). State undetermined: Herb. Nac. Venez. s.n. (Ve).

SYNGONANTHUS HUMBOLDTII var. MACROCEPHALUS Moldenke

Additional citations: VENEZUELA: Amazonas: Maguire & Politi

27649 (N--type), 27796 (N, Ve).

SYNGONANTHUS HUMBOLDTII var. ORINOCENSIS Moldenke

Additional isotypes are said to be in the Belém, Chicago, Kew, and Washington herbaria.

Additional citations: VENEZUELA: Amazonas: B. Maguire 29340 (N--type, Ve--isotype).

SYNGONANTHUS HYGROTICUS Ruhl.

Additional citations: BRAZIL: Minas Geraes: Glaziou 19998 [Macbride photos 10690] (Br--cotype, N--cotype, N--photo of cotype); Schwacke 8479 [Herb. Magalhães Gomes 2964; Herb. Jard. Bot. Belo Horiz. 26669] (N--cotype).

SYNGONANTHUS IMBRICATUS (Körn.) Ruhl.

Specimens of this species have been mis-identified as S. eburneus (Körn.) Ruhl.

Additional citations: BRAZIL: Bahia: Blanchet 958 (M, S), s. n. [Macbride photos 18746] (N--photo of isotype).

SYNGONANTHUS INSULARIS Moldenke

Alain in Contrib. Ocas. Mus. Hist. Nat. Coleg. La Salle 7: 47, 105. & 115 (1946) states that this species is endemic to the region of white siliceous sands and moist places in the savannas at Los Indios on the Isle of Pines. It has been collected in anthesis in February and has been mis-identified as S. lagopodioides (Griseb.) Ruhl.; in fact, Ekman 12095 is a mixture with material of that species.

Additional citations: ISLA DE PINOS: Britton, Britton, & Wilson 14162 (Cm--isotype, S--isotype); Carabia 3156 (Cr, N); Ekman 12095, in part (S), 12522 (I, S); León 17521 (N); León & Seifriz 17521 (Ha).

SYNGONANTHUS INUNDATUS (Körn.) Ruhl.

Additional citations: BRAZIL: Goyaz: L. Riedel 2745 [Macbride photos 10691] (N--photo of type, S--isotype). State undetermined: Herb. Rio de Janeiro s.n. (Ja).

SYNGONANTHUS KEGELIANUS (Körn.) Ruhl.

Additional citations: SURINAM: Kegel s.n. [Macbride photos 25170] (N--photo of isotype).

SYNGONANTHUS KUHLMANNII Moldenke

Additional citations: BRAZIL: Mattogrosso: J. G. Kuhlmann 1635 [Herb. Com. Linhas Teleg. Estrat. 1635; Herb. Rio de Janeiro 47666] (Ja--type, N--isotype).

SYNGONANTHUS LAGOPODIODES (Griseb.) Ruhl.

The species inhabits sandy savannas and has been collected in anthesis also in January, February, April, and December. Specimens have been mis-identified as S. wilsoni Moldenke. Acuña

14904 and 14907 are anomalous in having leaves 4 to 6 cm. long. The type collection is a mixture with Eriocaulon fuliginosum C. Wright, while Ekman 12095 is a mixture with Syngonanthus insularis Moldenke.

Additional citations: CUBA: Las Villas: Ekman 17105 (S). Pinar del Río: Acuña 14904 (Es), 14905 (Es), 14906 (Es), 14907 (Es), 14908 (Es); C. F. Baker 2096 (Es, Po--185870); Carabia 739 (Cr, N), 742 (Cr, N), 743 (Cr, N), 744 (Cr, N), 3021 (Cr, N); Ekman 17254 (S), 17906 (S), 10823 (I, S), 11035a (S), 11035b (S), 11061 (S), 11145 (S); León 15359 (N, N), 15421 (N, N), 17434 (N), 17438b (N); León & Alain 19406 (N), 19481 (N); León & Alain Joseph 17795 (N); León, Moldenke, Acuña, & Alain 23402 (N), 23403 (N), 23405, in part (N), 23406 (N), 23407 (N); León & Roca 6930 (Ha); León & Victorin 20480 (Ha); Moldenke & Moldenke 19872 (Es, Lg, N, Ot, Sm), 19875 (N), 19878 (Es, F, Lg, Mg, Mr, N, N, No, Ot, S, Sm), 19916 (N), 19917 (N), 19918 (Es, Lg, N, Ot, Sm), 19920 (N), 19922 (Es, Lg, N, Sm), 19923 (N), 19924 (Es, Lg, N, Sm), 19926 (Es, Lg, Mg, Mr, N, No, Ot, S, Sm), 19927 (Es, Lg, N), 19929 (Es, Lg, Mg, N, Ot, Sm), 19930 (Es, Lg, N, Sm), 19931 (Es, Lg, Mg, Mr, N, No, Ot, Sm), 19932 (N), 19933 (N); Moldenke, Moldenke, León, Alain, & Acuña 15273 (Es), 15274 (Es); Roig & Acuña 12936 (Es); C. Wright 3237, in part (Pa--isotype, S--isotype, S--isotype). ISLA DE PINOS: Alain & Killip 2116 (Z), 2187 (W--1959542), 2199a (W--1959543), 2202 (W--1959544); Britton, Britton, & Wilson 14223 (Cm), 15787 (Cm), 15789 (Cm); Britton, Wilson, & León 6049 (Ha); Carabia 997 (Cr, N), 1082 (Cr, N), 1189 (Cr, N), 3933 (Cr, N); Ekman 11765 (S), 11942 (S), 11974 (S), 12016 (S), 12071 (S), 12095, in part (S), 12192 (S), 12973 (S); León 6049 [Herb. Marie-Victorin 20278] (Vi), 17506 (N), 17543 (N); León, Albán, & Killip 17024 (Ha); León & Seifriz 17506 (Ha); Victorin & Alain 69 (Ha).

SYNGONANTHUS LARICIFOLIUS (Gardn.) Ruhl.

Additional citations: BRAZIL: Minas Geraes: Archer & Mello Barreto 4930 [Herb. Jard. Bot. Belo Horiz. 17512] (N); Glaziou 19981 (N); J. E. de Oliveira s.n. [13-VII-940] (Be--14907); Schwacke 8496 [Herb. Magalhães Gomes 2983; Herb. Jard. Bot. Belo Horiz. 26636] (N).

SYNGONANTHUS LEONII Moldenke

Additional citations: CUBA: Pinar del Río: León & Alain 19491 (Ha--isotype, N--type), 19496 (Ha, N).

SYNGONANTHUS LINEARIS Ruhl.

Additional citations: BRAZIL: Minas Geraes: Magalhães 1367 [Macbride photos 10692] (N--photo of type).

SYNGONANTHUS LLANORUM Ruhl.

Additional citations: COLOMBIA: Méta: F. W. Pennell 1430 (E--844007, N). Santander del Norte: Karsten s.n. [Macbride photos 29992] (N--photo of type). VENEZUELA: Guárico: Lasser 146 (W--1878267).

SYNGONANTHUS LONGIPES Gleason

The species is described as an annual to 1 meter tall, occasional in little wet savannas, growing at altitudes of 150 to 1220 meters, blooming in January and September. An additional specimen of Maguire, Cowan, & Wurdack 30983 is said to be in the Washington herbarium. The species is known also by Tate 1329 from Bolívar, Venezuela, and by Appun 1199, ImThurn 33, and Schomburgk 1060 from Mount Roraima, British Guiana.

Additional citations: VENEZUELA: Amazonas: Maguire, Cowan, & Wurdack 30983 (N, Ve). Bolívar: Cardona 52 [Herb. Nac. Venez. 18497] (Ve), 220 (Ve), 844 [Herb. Nac. Venez. 18496] (Ve); Steyermark 60304 (F--1209387, F--1209388, N). BRAZIL: Guaporé: Cordeiro & Silva 278 (N).

SYNGONANTHUS LUNDELLIANUS Moldenke

A synonym is Eriocaulon lundellianus Moldenke, in herb. The type collection is a mixture with a species of Xyris.

Additional citations: BRITISH HONDURAS: O'Neill 8546 (It--isotype).

SYNGONANTHUS MACROCAULON Ruhl.

The specimen cited by Silveira from "Cunani" is from Pará, Brazil. The species is found in water of small streams in dense forests at altitudes of 420 to 500 meters, blooming in January and March.

Additional citations: COLOMBIA: Méta: André 1143 (N); Killip 34259 (N, S). BRAZIL: Amapa: Black 49-8493 (N); Murça Pires & Silva 4206 (N).

SYNGONANTHUS MARGINATUS Alv. Silv.

Additional citations: BRAZIL: Minas Geraes: Mello Barreto 8930 [Herb. Jard. Bot. Belo Horiz. 25939] (N).

SYNGONANTHUS MENDESII Moldenke

Citations: BRAZIL: Minas Geraes: Mendes Magalhães 4339 [Herb. Jard. Bot. Belo Horiz. 45173] (N--type).

SYNGONANTHUS MINUTULUS (Steud.) Moldenke

A synonym is Eriocaulon minutulum Steud., Syn. Pl. Cyp. 2: 270 (1855). The species has been mis-identified as S. pusillus (Bong.) Ruhl., a synonym. Kunth in his Enum. Pl. 3: 577 (1841) cites Eriocaulon pusillum Bong., the name-bringing synonym, to Act. Petrop. 6 (1): 634, with an apparently unpublished plate 29.

Additional citations: BRAZIL: Minas Geraes: Silveira 519

[Herb. Marie-Victorin 12432] (N--photo, VI).

SYNGONANTHUS NANUS Moldenke

Citations: BRAZIL: Paraná: Ceccatto s.n. [Herb. Mus. Parana. 3230] (N--type).

SYNGONANTHUS NITENS (Bong.) Ruhl.

Malme mentions this species in his Phanerogamen 3: 9 (1933). Luetzelburg in his Estudo Botanico do Nordeste 3: 149 & 151 (1923) records it from Rio Preto and Rio das Femeas in eastern Bahia, where he says it is typical of the carrasco and frequent in the brejo. A synonym is Psilosepalus nitens Kunth ex V. A. Poulson., Vidensk. Meddel. Kjöbenhavn 1888: 343 (1888).

The disposition of the material cited below is very unsatisfactory. Probably several varieties are represented, but the proposed varieties proposed by Körnicke and Ruhland do not seem to be very clear-cut. The extra long-peduncled specimens may represent a separate species, named Paepalanthus longiscapus V. A. Poulson tentatively by Poulson and typified by Mosén 762 (as compared to Mosén 763 which Poulson regards as typical S. nitens. Riedel 2305 and Weddell 2442 also have short peduncles and so does Martius 895. Most of the rest of the material here cited has long peduncles. The Gardner 2965, Macedo 3353, Stephan s.n., and Swallen 9611 have been regarded by some as representing var. filiformis, while Hassler 9430 has been called S. gracilis Ruhl.

Additional citations: BRAZIL: Goyaz: Luetzelburg 1433 (N); Weddell 2442 (N, N). Mattogrosso: Swallen 9611 (N). Minas Geraes: Burchell 5764 (Br); Macedo 3353 (N); Mendes Magalhães 416 [Herb. Jard. Bot. Belo Horiz. 34293] (N); Mosén 762 (S), 763 (S, S); Regnell III.1802 (S); L. Riedel 295 (S--isotype); Stephan s.n. (N); Ule s.n. [Uberaba, VI/1892; Herb. Rio Janeiro 47724] (Ja). Paraná: Dusén 10487 (S). São Paulo: Brade 5531 (S); Burchell 5208 (Br); F. C. Hoehne 6591 (N); Löfgren 367 (S); L. Riedel 2305 (M, S). State undetermined: G. Gardner 2964 (N), 2965 (N); Martius 895 (M). PARAGUAY: Hassler 9430 (S).

SYNGONANTHUS NITENS var. ERECTUS Ruhl.

This trinomial is given as S. nitens var. erecta Ruhl. by Malme in his Phanerogamen 3: 10 (1933) and by Ruhland himself in the original publication.

Additional citations: BRAZIL: Goyaz: Burchell 7483 (Br--cotype); Glaziou 22307 (Br--cotype, E--photo of cotype, F--photo of cotype, N--cotype, N--photo of cotype, S--cotype, S--cotype, Z--photo of cotype); Weddell 2139 (Br), 2442 (Br). Mattogrosso: Weddell 3340 (Br), 3385 (Br).

SYNGONANTHUS NITENS var. FILIFORMIS (Bong.) Ruhl.

The basynym, Eriocaulon filiforme Bong., is cited by Kunth in his Enum. Pl. 3: 577 (1841) to Act. Petrop. 6 (1): 634, with an

apparently unpublished plate 53, the type from Serra da Lapa. Other synonyms are Paepalanthus lamprocephalus Mart. and P. lamprocephalum Mart., of which the type is Clausen 13 [Herb. Martius 895] and P. filiformis Körn. Several of the specimens cited below were originally identified as S. gracilis (Körn.) Ruhl. Other specimens identified as var. filiformis are, I believe, better regarded as typical S. nitens and var. koernickei and are herein cited under those entities. The type collection of var. filiformis is short-peduncled. The variety is listed by Malme in his *Phanerogamen* 3: 10 (1933). It has been collected in anthesis in August and September.

Additional citations: BRAZIL: Goyaz: Weddell 2384 (Br). Mattogrosso: Malme 1927 (S), 1969a, in part (S), 1969b, in part (S), 1969c (S). Minas Geraes: Clausen 13 [Herb. Martius 895] (Br, E--photo, F--photo, N--photo, Z--photo); L. Riedel 1032 (Br--isotype, N--photo of isotype, S--isotype, Z--photo of isotype), s.n. [ad Barbacena] (Br). State undetermined: Collector undesignated 210 (Br); Sellow s.n. [Brasilia] (Br); Stephan s.n. [Congonhas do Campo, 1843] (Br). PARAGUAY: Rojas 6270 (S).

SYNGONANTHUS NITENS var. HIRTULUS Ruhl.

Additional citations: BRAZIL: Goyaz: Glaziou 22304 [Macbride photos 22290] (Br--cotype, Kr--photo of cotype, N--cotype, N--photo of cotype), 22306 (Br--cotype).

SYNGONANTHUS NITENS var. KOERNICKEI Ruhl.

Several of the specimens cited below were originally identified as var. filiformis (Bong.) Ruhl. or as S. gracilis Ruhl. or as S. gracilis var. aurea Ruhl. The two Dusén collections are short-peduncled.

Additional citations: BRAZIL: Minas Geraes: G. Gardner 5279 (N--cotype); Mello Barreto 2550 [Herb. Jard. Bot. Belo Horiz. 8241] (N); 2583 [Herb. Jard. Bot. Belo Horiz. 8285] (N); Mendes Magalhães 4349 [Herb. Jard. Bot. Belo Horiz. 45199] (N); Weddell 1914 (Br--cotype, E--photo of cotype, F--photo of cotype, N--photo of cotype, Z--photo of cotype). Paraná: Dusén 2517 (S), 7208 (S). PARAGUAY: Hassler 4671 (S), 9436 (S), 9436b (S).

SYNGONANTHUS NITENS f. MALMII Moldenke

Additional citations: BRAZIL: Mattogrosso: Malme 1966a (N--fragment of type, N--photo of type, S--type, Z--photo of type).

SYNGONANTHUS NITENS f. PILOSUS Moldenke

Additional citations: BRAZIL: Mattogrosso: Malme 1966 (N--fragment of type, N--photo of type, S--type, Z--photo of type), 1969 (S), 1969a, in part (S), 1969b, in part (S).

SYNGONANTHUS NIVEUS (Bong.) Ruhl.

Several collections originally distributed as this species have proved to be var. rosulatus (Körn.) Moldenke, S. elegans

(Körn.) Ruhl., or S. elegantulus Ruhl. It has been collected in anthesis in May.

Additional citations: BRAZIL: Federal District: Brade 10987 [Herb. Mus. Nac. Rio Janeiro 26707] (Ja). Minas Geraes: Glaziou 16395 (E--photo, F--photo, N, N--photo, Z--photo), 16398, in part (Br); Ule 2723 [Herb. Mus. Nac. Rio Janeiro 47757] (Ja). State undetermined: Collector undesigned 207 [Caxoeira do Campo, Maio '39] (Br).

SYNGONANTHUS NIVEUS var. ROSULATUS (Körn.) Moldenke

Many of the specimens cited below had been originally determined as S. niveus (Bong.) Ruhl.; the Clausen sheet was labeled as Eriocaulon niveum Bong.

Additional citations: BRAZIL: Minas Geraes: P. Clausen s.n. (Br); Mendes Magalhães 2097 [Herb. Jard. Bot. Belo Horiz. 42496] (N), 2134 [Herb. Jard. Bot. Belo Horiz. 42660] (N); Mexia 5734 (Gg--286183, M1, N, S, Ug); Weddell 1894 (Br); Wied-Neuwied s.n. [Rio Belmonte] (Br--cotype). Rio de Janeiro: Glaziou 6449 (S); Luschnath s.n. [Herb. Martius 1087] (T--cotype); L. Riedel 539 (S), 559 (M--cotype), s.n. [Brasilia] (Br). São Paulo: Regnell III.1265 (S, S). State undetermined: Herb. A. Gray s.n. (T).

SYNGONANTHUS OBLONGUS (Körn.) Ruhl.

Cuatrecasas 6951, originally identified as this species, proves to be S. caulescens (Poir.) Ruhl. instead. The Murça Pires 739 cited below was originally identified as var. aequinoctialis Ruhl. Additional specimens of Maguire & Maguire 29158 and of Maguire, Cowan, & Wurdack 29630 are said to be in the Kew and Washington (former) and Chicago and Washington (latter) herbaria. The species is described as having pale-green leaves and white flower-heads and to be found at the base of waterfalls and occasional in moist places among rocks, at altitudes of from 200 to 1300 meters, blooming in April, October, and November. It is recorded by Luetzelburg in his Estudo Botanico do Nordeste 3: 149 & 151 (1923) from São Bento das Lagos, in eastern Bahia, and is said to be typical of the carrasco there.

Whether the so-called var. aequinoctialis is really distinct or not is questionable. The characters given by Ruhland do not seem to be constant, but the typical form of the species does seem to have plainly villous flower-heads, while the variety has them subglabrous.

Additional citations: COLOMBIA: Amazonas: Garcia-Barriga 13716 (W--2058380). Vaupés: Cuatrecasas 7158 (N, N); R. E. Schultes 5823 (N, Ug), 5837b (N). VENEZUELA: Amazonas: Maguire, Cowan, & Wurdack 29630 (N, Ve); Maguire & Maguire 29158 (N, Ve). BRAZIL: Amazonas: Black 48-2621 (Be--33356); Fröes 25385 (N); Murça Pires 739 (N), s.n. [Rio Icana, Tunuf, 1947] (Be--30620); Spruce 2578 (N). Mattogrosso: J. G. Kuhlmann 1631 [Herb. Mus. Nac. Rio Janeiro 47665] (Ja). Piauí: G. Gardner 2962 [Macbride photos 10693] (N--isotype, N--photo of type).

SYNGONANTHUS OBLONGUS f. ABBREVIATUS Herzog

The form is recorded (as "f. abbreviata") by Luetzelburg in his Estudo Botanico do Nordeste 3: 149 & 151 (1923) from Rangel, southern Piauí, where it is said to be typical of the brejo.

SYNGONANTHUS OBLONGUS var. AEQUINOCTIALIS Ruhl.

The Murça Pires 739 originally identified as this variety seems, rather, to represent the typical form of the species. See under S. oblongus for a note about the validity of this variety.

Additional citations: BRAZIL: Amazonas: Luetzelburg 23907 [Herb. Mus. Nac. Rio Janeiro 47730] (Ja, N), 23938 & 23945 [Herb. Mus. Nac. Rio Janeiro 47733] (Ja, N); Spruce 2578 [Macbride photos 22291] (Br--isotype, N--photo of isotype, S--isotype, S--isotype).

SYNGONANTHUS ONEILLII Moldenke

The species apparently grows in association with S. hondurensis Moldenke since the two were originally mixed by Lundell under his no. 8543 -- the S. oneillii material here being regarded as no. 8543a. The name is sometimes written "Syngonanthus O'Neillii", but was not originally published thus.

Additional citations: BRITISH HONDURAS: O'Neill 8548 (Au--isotype, Au--isotype, Ba--isotype, Cm--isotype, Gg--276716--isotype, Mb--isotype, N--isotype), 8549 (Ba, Gg--276715, I, M1, N, N).

SYNGONANTHUS PAEPALOPHYLLUS Alv. Silv.

Additional citations: BRAZIL: Minas Geraes: Silveira 522 [Herb. Marie-Victorin 12436] (N--photo of isotype, Vi--isotype).

SYNGONANTHUS PARAËNSIS Ruhl.

Additional citations: BRAZIL: Amazonas: J. T. Baldwin 3231 (N), 3479 (N), 3546 (Be--32040); Black 48-2578 (Be--33313); Murça Pires 422 (Be--28380, N). Pará: Spruce s.n. [fl. Aripicuru, Dec. 1849; Macbride photos 18747] (N--isotype, N--photo of type).

SYNGONANTHUS PAUPER Ruhl.

The Mello Barreto collection cited below was originally distributed as S. habrophyus Ruhl.

Additional citations: BRAZIL: Minas Geraes: Mello Barreto 4794 [Herb. Jard. Bot. Belo Horiz. 17534] (N); Sena 14557 [Macbride photos 10694] (N--photo of type); Silveira 540 [Herb. Marie-Victorin 15835] (N--photo, Vi).

SYNGONANTHUS PERUVIANUS Ruhl.

The Macbride photograph is erroneously numbered "19b" on its accompanying label.

Additional citations: PERU: San Martín: Stubel 196 [Macbride

photos 10695] (N--photo of type).

SYNGONANTHUS PHELPSAE Moldenke

Additional specimens of the type collection are said to be in the Caracas, Chicago, and Kew herbaria. The species is frequent in sphagnum hummocks in wet shrubby savannas, blooming in December, at altitudes of 4500 feet.

Additional citations: VENEZUELA: Amazonas: Maguire, Phelps, Hitchcock, & Budowski 31707 (N--type, W--isotype); Maguire & Politi 27584 (N, Ve), 27697 (N, Ve).

SYNGONANTHUS PHELPSAE var. ELONGATUS Moldenke

Additional citations: VENEZUELA: Amazonas: Cowan & Wurdack 31098 (N--type, Ve--isotype).

SYNGONANTHUS PHILODICOIDES (Körn.) Ruhl.

This binomial is sometimes mis-spelled "Paepalanthus philodecoides Koern."

Additional citations: BRAZIL: Goyaz: Weddell 2080 (Br--cotype, N--photo of cotype, Z--photo of cotype), 2126 (Br--cotype, E--photo of cotype, F--photo of cotype, N--cotype, N--photo of cotype, Z--photo of cotype).

SYNGONANTHUS PITTIERI Moldenke

The original publication is in Ann. Mo. Bot. Gard. 27: 269 (1940). The species is found in savannas at altitudes of 700 to 1100 meters, blooming in March.

Additional citations: PANAMA: Chiriquí: H. Pittier 3316 (N--photo of type, W--677698--type, Z--photo of type).

SYNGONANTHUS PLANUS Ruhl.

The label on the photograph cited below states "Rio de Janeiro" in error.

Additional citations: BRAZIL: Minas Geraes: Glaziou 11634 [Macbride photos 11634] (N--photo of type).

SYNGONANTHUS PLUMOSUS Alv. Silv.

The specimen cited below was originally distributed as S. laricifolius (Gardn.) Ruhl.

Additional citations: BRAZIL: Minas Geraes: Mello Barreto 8927 [Herb. Jard. Bot. Belo Horiz. 25930] (N).

SYNGONANTHUS PULCHER (Körn.) Ruhl.

Additional citations: BRAZIL: Minas Geraes: G. Gardner 5265 [Macbride photos 10697 & 25175] (N--photo of isotype, N--photo of isotype); Mello Barreto 2544 [Herb. Jard. Bot. Belo Horiz. 10690] (N).

SYNGONANTHUS RECLINATUS (Körn.) Ruhl.

The species is recorded by Luetzelburg in his Estudo Botanico do Nordeste 3: 149 & 151 (1923) from Morro do Chapéo in central

Bahia, Santa Maria in eastern Bahia, and several localities in eastern Goyaz, where it is said to be typical of the carrasco and frequent in the campinas.

Additional citations: BRAZIL: Goyaz: G. Gardner 3488 [Macbride photos 10698 & 25176] (N--photo of type, N--photo of isotype, S--isotype), 3785 (N); Luetzelburg 1340 (N); Murça Pires & Black 2418 (N). Maranhão: Murça Pires & Black 1610a (N), 2259 (N).

SYNGONANTHUS REFLEXUS Gleason

The species has been collected at 200 meters altitude, blooming in August.

Additional citations: VENEZUELA: Amazonas: Steyermark 57816 (N, S); Ll. Williams 15068 [Herb. Nac. Venez. 18503] (Ve). BRAZIL: Pará: Sioli s.n. [Herb. Inst. Agron. Norte 29163] (N).

SYNGONANTHUS RHIZONEMA Ruhl.

Additional citations: BRAZIL: São Paulo: Glaziou 13284 [Macbride photos 10699] (Br--isotype, N--fragment of isotype, N--photo of type).

SYNGONANTHUS RUFO-ALBUS Alv. Silv.

The specimen cited below was originally identified at S. laricifolius (Gard.) Ruhl.

Additional citations: BRAZIL: Minas Geraes: Mello Barreto 2517 [Herb. Jard. Bot. Belo Horiz. 8230] (N).

SYNGONANTHUS SAVANNARUM Moldenke

The species forms congested rosettes in small tussocks, its heads whitish, and is abundant on otherwise bare ground in sandy areas at about 1200 feet altitude, blooming in September, according to Sandwith.

Additional citations: BRITISH GUIANA: Appun 1009 (K); Sandwith 1371 (K, N).

SYNGONANTHUS SCHLECHTERI Ruhl.

A synonym is Paepalanthus schlechteri (Ruhl.) Macbr., Candollea 5: 348. 1934.

SYNGONANTHUS SCHWACKEI Ruhl.

Literature: Moacyr do Amaral Lisboa, Revista do Escola de Minas 8 (April 1951).

SYNGONANTHUS SCLEROPHYLLUS Ruhl.

Additional citations: BRAZIL: Goyaz: Glaziou 22305 [Macbride photos 10700] (Br--isotype, N--fragment of isotype, N--photo of type).

SYNGONANTHUS SIMILIS Ruhl.

Additional citations: BRAZIL: Minas Geraes: Sena 14570 [Macbride photos 10701] (N--photo of type).

SYNGONANTHUS SIMPLEX (Miq.) Ruhl.

The species is said to be frequent on white sand on the border of small savannas, at an altitude of 150 meters, blooming in September. The Steyermark collection cited below was originally identified as S. gracilis var. hirtellus (Steud.) Ruhl. Additional specimens of Maguire & Politi's collection are said to be in the Chicago, Kew, and Washington herbaria.

Additional citations: VENEZUELA: Amazonas: Maguire & Politi 28035 (N, Ve); Steyermark 57814 (N); G. H. H. Tate 248 (N), 300 (N). BRITISH GUIANA: Maguire 23219 (N). SURINAM: Hostmann 15 [633] (N--photo of isotype, S--isotype, S--isotype, Z--photo of isotype). BRAZIL: Amazonas: Murça Pires 737 (N). Goyaz: Murça Pires 2365 (N); Murça Pires & Black 2365 (N). Maranhão: Murça Pires & Black 2179 (N). Rio Branco: Black 51-13725 (N).

SYNGONANTHUS SPADICEUS (Körn.) Ruhl.

The Stephan collection cited below was originally identified as Paepalanthus vautherianus Kunth.

Additional citations: BRAZIL: Minas Geraes: Stephan s.n. [Congonhas do Campo, 1843] (Br--isotype, N--isotype); Warming 535 [Macbride photos 22295] (N--photo).

SYNGONANTHUS SQUARROSUS Ruhl.

The label on the Macbride photograph says "Glaziou 15540" in error.

Additional citations: BRAZIL: Minas Geraes: Glaziou 15541 [Macbride photos 10702] (Br--isotype, N--fragment of isotype, N--photo of type, Qu--fragment of isotype); Mello Barreto 2576 [Herb. Jard. Bot. Belo Horiz. 10705] (N).

SYNGONANTHUS STEYERMARKII Moldenke

Citations: VENEZUELA: Táchira: Steyermark 57372 (N--type).

SYNGONANTHUS TENUIS (H.B.K.) Ruhl.

The species is said to be infrequent in wet places at an altitude of 125 meters, blooming in December, with ampliate marginal flowers. The Spruce collection cited below was originally distributed as "Paepalanthus tenuis H.B.K."

Additional citations: VENEZUELA: Amazonas: Herb. Humboldt s.n. [Macbride photos 10703] (N--photo of type); Maguire, Cowan, & Wurdack 30473 (N); Spruce 3706 (Br). Bolívar: Cardona 836 [Herb. Nac. Venez. 18499] (N, Ve). BRAZIL: Amazonas: Schultes & López 10308 (N, W--1997107). Pará: Black 50-8688, in part (N).

SYNGONANTHUS TRICOSTATUS Gleason

The species is said to be frequent in muddy areas at altitudes of 1220 to 2000 meters, blooming in November and February. An additional specimen of the Maguire, Phelps, Hitchcock, & Budowski collection cited below is said to be in the United States National Herbarium at Washington. The species has been collected on Mount Roraima, British Guiana, by R. H. Schomburgk.

Additional citations: VENEZUELA: Amazonas: Maguire, Phelps, Hitchcock, & Budowski 31706 (N, Ve). Bolívar: Lasser 1473 (N, W-1901894); Steiermark 59367 (N, S), 59643 (N); G. H. H. Tate 809 (N). BRITISH GUIANA: Maguire & Fanshawe 23113 (N); Sandwith 1372 (N). BRAZIL: Goyaz: Macedo 2138 (N). Maranhão: Murça Pires & Black 2244 (N).

SYNGONANTHUS ULEI Ruhl.

The specimen cited by Silveira from "Manaos" is from Amazonas, Brazil.

Additional citations: BRAZIL: Amazonas: Fróes 24908 (N); Ule 6176 [Macbride photos 10704] (N—photo of type). Pará: Ducke 8403 (S).

SYNGONANTHUS UMBELLATUS (Lam.) Ruhl.

The specimen cited by Silveira from "Marajo" is from Marajo Island in Pará, Brazil. Cuatrecasas 6951 was originally identified as S. oblongus (Körn.) Ruhl. The Schomburgk specimen was identified as "Paepalanthus umbellatus Kunth". Another synonym is Syngonanthus umbellatus f. latifolius Herzog (originally published as "f. latifolia"), of which the type is Luetzelburg 21957. The species is found in grass savannas and in rocky soil with white sand, at altitudes of from 200 to 400 meters, blooming from June to September and in December.

The West Indian records are so noteworthy that they had better be given in full here: Ekman collected the plants in (1) peat savannas at Sabana de los Geugibres, Matanzas, prov. Duarte, Cordillera Septentrional, August 8, 1930, and (2) in moist savanna at El Valle, Sabana de la Mar, prov. Samaná, Cordillera Central, July 14, 1930. The second is sterile (H.15698), but is probably this species.

Additional citations: HISPANIOLA: Dominican Republic: Ekman H.15698 (S), H.15867 (S). COLOMBIA: Amazonas: Garcia-Barriga & Schultes 14166 (W--2058753). Vaupés: P. H. Allen 3213 (W--1951976); Cuatrecasas 6951 (N, W--1796729); Gutiérrez Villegas & Schultes 918 (It, N). VENEZUELA: Amazonas: Steiermark 57846 (F--1205138, N, S). Bolívar: Killip 37355 (W--1855099). BRITISH GUIANA: Abraham 137 (N); C. B. Clarke s.n. [1897] (N); De la Cruz 4013 (D--603281, N); A. S. Hitchcock 16946 (N, S); Jenman 1073 (N); Maguire & Fanshawe 23252 (N); M. R. Schomburgk 216 (Du); A. C. Smith 2166 (S). SURINAM: Essed xxx (N); Hostmann 592a (S); Kappler 592b (S), 592c (S); Maguire 24380 (N); Maguire & Stahel 23662 (N); Moldenke & Moldenke 19577 (B, Es, F, Fy, Lg, Lm, Mg, Mr, N, No, Ot, Rs, S, Sm, Ss), 19578 (Es, Lg, Mg, N, Ot, Sm), 19579 (Es, Es, N); Samuels 234 (N); Wulfschlägel 761 (Br), s.n. [Berlyn, Para] (Br). FRENCH GUIANA: Martin s.n. [Cayenne] (Br). BRAZIL: Amapá: Black 49-8258 (N); Black & Lobato 50-9492 (Z); Fróes 26045 (N). Amazonas: Black 48-3049 (Be--36951); T. Guedes 73 (Be--43296), 74 (Be--43297); Killip & Smith 30084 (N,

S); Luetzelburg 21957 [Herb. Mus. Nac. Rio Janeiro 47681] (Ja, N--photo, S, Z--photo), 21990 [Herb. Mus. Nac. Rio Janeiro 47688] (Ja), 22895 [Herb. Mus. Nac. Rio Janeiro 47677] (Ja), 23644 [Herb. Mus. Nac. Rio Janeiro 47658] (Ja), 23708 [Herb. Mus. Nac. Rio Janeiro 47696] (Ja); Spruce 2531 (Br). Pará: Black 48-3274 (Be--37767), 50-8816 (N); Murça Pires 1400 (Be--37531, N); Murça Pires & Silva 4265 (N). Rio Branco: Black 51-13704 (N), 51-13840 (N).

SYNGONANTHUS UMBELLATUS var. LIEBMANNIANUS (Körn.) Ruhl.

Luetzelburg in his Estudo Botanico do Nordeste 3: 149 & 151 (1923) spells the varietal name "liebmanniana". He records the variety from Campinas de Duro in eastern Goyaz.

Additional citations: BRAZIL: Mattogrosso: Swallen 9612 (W--1903233), 9613 (W--1903234). São Paulo: L. Riedel 2349 (M--isotype, S--isotype). State undetermined: Lund 560 [Macbride photo 22286] (N--photo).

SYNGONANTHUS VAUPESANUS Moldenke

The type collection was originally identified as S. gracilis (Körn.) Ruhl. The species is said to grow in rocky soil with white sand, at altitudes of 220 to 400 meters, blooming in September and December, the flowers white.

Additional citations: COLOMBIA: Amazonas: Garcia-Barriga & Schultes 14148 (W--2058741). Vaupés: P. H. Allen 3169 (W--1951961), 3211 (W--1951973); Cuatrecasas 6973 (It--fragment of type, N--isotype, N--photo of type, W--1796730--type, Z--photo of type). BRAZIL: Goyaz: Murça Pires & Black 2417 (N). Pará: Black 50-8645 (N); N. T. Silva 144 (Be--42549, N).

SYNGONANTHUS VENEZUELENSIS Moldenke

Additional citations: VENEZUELA: Bolívar: Steyermark 59347 (N--type, S--isotype).

SYNGONANTHUS VENUSTUS Alv. Silv.

Additional citations: BRAZIL: Minas Geraes: Souza Brito s.n. [Herb. Mus. Nac. Rio Janeiro 4805] (N, S).

SYNGONANTHUS VERNONIOIDES (Kunth) Ruhl.

Additional citations: BRAZIL: Minas Geraes: Mendes Magalhães 1087 [Herb. Jard. Bot. Belo Horiz. 39229] (N); Sellow B.1295 [c. 270] (N--photo of isotype, S--isotype, Z--photo of isotype).

SYNGONANTHUS VERNONIOIDES var. CONFUSUS (Körn.) Ruhl.

Additional citations: BRAZIL: Minas Geraes: Herb. A. Gray s. n. (T); L. Riedel 541 [561?] (S--isotype).

SYNGONANTHUS VERNONIOIDES var. MINOR (Kunth) Ruhl.

Based on Kunth's description in his Enum. Pl. 3: 529 (1841), the type from the summit of Serra do Santo Antonio

Additional citations: BRAZIL: Minas Geraes: Sellow 1295 [Macbride photos 10705] (Br--isotype, N--fragment of isotype, N--photo of type).

SYNGONANTHUS VERTICILLATUS (Bong.) Ruhl.

A synonym is Paepalanthus verticillatus Kunth.

Additional citations: BRAZIL: Goyaz: Weddell 2140 [no. 13] (Br, N--photo, Z--photo). Minas Geraes: G. Gardner 5263 (N); Mendes Magalhães 4337 [Herb. Jard. Bot. Belo Horiz. 45169] (N); L. Riedel 1033 (S--isotype), s.n. [Serra da Lapa] (Br--isotype, N--photo of isotype, Z--photo of isotype); Sampaio 6694 (S). State undetermined: Glaziou 19979 (Br, C).

SYNGONANTHUS WAHLBERGII (Wikstr.) Ruhl.

Th. Arwidsson in Bot. Notiser 1934: 84 (1934) records this species also from Nigeria, Tanganyika, and the Union of South Africa. It grows at altitudes of 4800 to 5000 feet.

Additional citations: SOUTHERN RHODESIA: Brain 3773 [Govt. Herb. Salisbury 10739] (Rh); Corby 74 [Govt. Herb. Salisbury 20927] (Rh), 133 [Govt. Herb. Salisbury 21586] (Rh), 145 [Govt. Herb. Salisbury 22490] (Rh); F. Eyles 1437 (Rh), 1803 (Rh), 3390 (Rh); Herb. Queen Victoria Memorial 7038 (Rh), 7442 (Rh); Ratray 416 (Rh), 684 [Govt. Herb. Salisbury 13679] (Rh); Stent & Brain s.n. [Govt. Herb. Salisbury 6002] (Rh); Wild 154 [Govt. Herb. Salisbury 13727] (Rh), 1551 [Govt. Herb. Salisbury 16096] (F--photo, N, N--photo, Rh, Sg--photo, Z--photo), 2524 [Govt. Herb. Salisbury 20052] (Rh).

SYNGONANTHUS WEDDELLII Moldenke

Additional citations: BRAZIL: Goyaz: Weddell 2725 (Br--type, N--fragment of type, N--photo of type, Z--photo of type).

SYNGONANTHUS WIDGRENIANUS (Körn.) Ruhl.

A synonym of this species is Paepalanthus widgrenianus Körn. The species has been collected at altitudes of 1600 meters, blooming in May and December. Brade 5532 was originally identified as S. fischerianus (Bong.) Ruhl.

Additional citations: BRAZIL: Minas Geraes: B. Lutz s.n. [Herb. Mus. Nac. Rio Janeiro 47748] (Ja); Macedo 2751 (N); Silveira 226 [Herb. Marie-Victorin 12435] (Vi); Widgren 5 (S), 100 (S), 822 (N--photo of cotype, S--cotype, S--cotype, Z--photo of cotype), s.n. [Macbride photos 10706] (N--photo, S); Williams & Assis 7248 (S). Paraná: Hatschbach 1138 (N); Mattos 4328 (N). São Paulo: Brade 5532 [Herb. Inst. Biol. S. Paulo 6582] (N), 12228 [Herb. Mus. Nac. Rio Janeiro 30342] (Ja, S); W. Hoehne 766 (N); Eugenio Leite 3901, (s.n. [V. 1950] (N); Moldenke & Moldenke 19644 (B, Es, F, Fy, Lg, Lm, Mg, Mr, N, No, Ot, Rs, S, Sm, Ss), 19909 (Es, N); L. Riedel s.n. [Taubaté] (S). State undetermined: G. Gardner 2957 (N), 5274 (N).

SYNGONANTHUS WILSONII Moldenke

Alain, in Contrib. Ocas. Mus. Hist. Nat. Coleg. La Salle 7: 105 & 115 (1946), spells the name "S. wilsoni Moldenke". Carabia 741 and 746, originally identified as this species, are actually pubescent forms of S. lagopodioides (Griseb.) Ruhl. The León & Roca collection cited below was originally distributed as S. androsaceus (Griseb.) Ruhl. The species has been collected in anthesis in December.

Additional citations: CUBA: Pinar del Río: León & Roca 7498 (Ha). ISLA DE PINOS: Alain & Killip 2162 (N); Britton, Britton, & Wilson 15789 (S—isotype); Carabia 998 (Cr, N); Ekman 12101 (S).

SYNGONANTHUS XERANTHEMOIDES (Bong.) Ruhl.

Kunth, in his Enum. Pl. 3: 578 (1841), cites Eriocaulon xeranthemoides Bong. to Act. Petrop. 6 (1): 635, with an apparently unpublished plate 40 as illustration, with the type from swampy places in the Serra da Chapada. Another synonym is Paepalanthus xeranthemoides Mart. The species is said to be rather conspicuous because of its white flower-heads, growing in swampy areas in llanos, at altitudes of 140 to 150 meters, blooming in April.

Additional citations: COLOMBIA: Méta: Haight 2740 (N). VENEZUELA: Amazonas: Ll. Williams 13857 (W—1832611). State undetermined: Herb. Nac. Venez. s.n. (Ve). BRAZIL: Goyaz: G. Gardner 3490 (N, S, W—938120); Weddell 2385 [no. 15] (Br), 2964 [no. 21] (Br). Mattogrosso: Lindman A.2649 (S, S, S); Malme 1456 (S, S), 1960a (S), 1960b (S), 1960c (S). Minas Geraes: J. E. Pohl s.n. [1839] (Br); L. Riedel s.n. (Br—isotype). Paraná: G. Jönsson 438a [Herb. Mus. Parana. 4] (N, S). Rio de Janeiro: Luschnath s. n. [Campos Boa Perna, April 1834] (Br, N); Martius 561 (M). São Paulo: Löfgren 390 (S); L. Riedel 1475 (S). State undetermined: G. Gardner 5278 (N); Herb. A. Gray s.n. [Brasil] (T); Weddell 1890 [no. 39; São Francisco de Chagas] (Br).

SYNGONANTHUS YACUAMBENSIS Moldenke

Citation: ECUADOR: Azuay: Prieto P.197 (N—type).

SYNGONANTHUS YAPACANENSIS Moldenke

Isotypes are said to be deposited also in the Chicago, Kew, and Washington herbaria.

Additional citations: VENEZUELA: Amazonas: Maguire, Cowan, & Wurdack 30782 (N—type, Ve—isotype).

TONINA Aubl.

Literature: Aublet, Hist. Pl. Guian. Fr. 2: 856. 1775; Kunth, Enum. Pl. 3: 494. 1841; Moldenke, Carnegie Inst. Wash. Publ. 522: 147. 1940; B. P. Reko, Bol. Soc. Bot. Mex. 4: 36. 1946.

TONINA FLUVIATILIS Aubl.

Literature: Kunth, Enum. Pl. 3: 494. 1841; Moldenke, Carnegie

Inst. Wash. Publ. 522: 117—118. 1940; Moldenke, Ann. Mo. Bot. Gard. 28: 411. 1941; Hodge, Revist. Fac. Nat. Agron. 7: 286. 1947; Determinac. Ejemp. Herb. Fac. Nac. Agron. Medellin 50. 1949.

The synonym Hyphydra amplexicaulis Vahl is listed in Spreng., Syst. 3: 891. Other synonyms are Tonina triandra Mart., of which the Martius collection cited below is the type, and Eriocaulon amplexicaule Rottb. The Bommer specimen cited below is labeled as from "Guinea", but this must surely be an error for Guiana. The specimen cited by Silveira from "Cunani" is from Pará, Brazil.

The species is a medium-sized, slender, aquatic herb, with green flowers, found in mossy forests, swamps, roadside ditches, and among grass about springs. It is said to be occasional in shallow swampy places, abundant in wet soil that is flooded during the rainy season, and forming mats in open marshy ground along streams. Woodson, in a letter to me dated August 1, 1941, states that he collected it in the rainy season, but that the stems were tufted, not floating, and not even in a temporary pool. It has been found at altitudes from sea level to 3400 meters, blooming in January, February, April, May, July, August, September, October, November, and December.

Additional citations: BRITISH HONDURAS: Schipp 693 (S). NIC-ARAGUA: Cabo Gracias a Dios: Lanneberger s.n. [P. O. Schallert 12168] (H--9663). COSTA RICA: Limón: Dodge, Catt, & Thomas 8070 (S). Puntarenas: H. Pittier 4042 (Br), 6575 (Br). San José: Skutch 2465 (S), 3891 (N, S). PANAMA: Chiriquí: Woodson & Schery 752 (N). CUBA: Pinar del Río: Ekman 11120 (S), 11226 (S). Province undetermined: C. Wright 3242 (Pa, S, S). TRINIDAD: D. W. Alexander 5171 (S, S), s.n. [Trin. Bot. Gard. Herb. 5171] (R); Britton, Britton, & Mendelson 1069 [Trin. Bot. Gard. Herb. 9539] (R); W. E. Broadway 2212 (Br), s.n. [Trin. Bot. Gard. Herb. 5277] (R); W. G. Freeman s.n. [Trin. Bot. Gard. Herb. 8020] (R), s.n. [Trin. Bot. Gard. Herb. 9380] (R), s.n. [Trin. Bot. Gard. Herb. 9578] (R), s.n. [January 28, 1920] (R), s.n. [Dec. 3, 1922] (R); Freeman, Williams, & Cheesman s.n. [Trin. Bot. Gard. Herb. 10991] (R); Trin. Bot. Gard. Herb. 824 (N, R), 1959 (R), 4660 (R); Warming 259 (S). COLOMBIA: Antioquia: Archer 334 (Fn--319); Scolnik, Araque Molina, & Barkley 19An415 (N). Caldas: F. W. Pennell 10492 (N). Chocó: Araque Molina & Barkley 19Ch093 (N, S); Cuatrecasas 21430 (F--1359965); Killip 35273 (N, S); Sneider 4984 (F--1302011). Magdalena: Haught 2287 (N). Méta: Cuatrecasas 3509 (F--1330843), 4498 (F--1329928); Galen Smith & Idrobo 1560 (W--2047795); Haught 2579 (Gg--316198, N). Narino: R. Espinosa 2936 (N). Valle del Cauca: Cuatrecasas 16197 (N), 16961 (N), 21039 (F--1359977); Killip & Garcia 33298 (N, S). Department undetermined: Lehmann B.T. 1189 (N); Moritz s.n. [Columbien] (Br, S). VENEZUELA: Anzoátegui: H. Pittier 15163 [Herb. Nac.

Venez. 18504] (Ve). Bolivar: Steyermark 60953 (N, S). State undetermined: Karsten 9 [Baul, Llano del Orinoco] (Ve). BRITISH GUIANA: A. S. Hitchcock 16861 (S); Jerman 4667 (Ka); Linder 54 (S); A. C. Smith 2181 (S). SURINAM: Collector undesignated s.n. (Du); Hostmann & Kappler 608 (S); Kuyper 100 (N); Weigelt s.n. [1827] (Br, Gg--105757, S); Wulfschlägel 775 (Br). FRENCH GUIANA: Collector undesignated 222 (Br); Leprieur s.n. [févr. 1835] (Du), s.n. [Cayenne] (Br); Martin s.n. [Cayenne] (Br, Br); L. C. Richard s.n. (Q). ECUADOR: Imbabura: André 3387 (N). PERU: Loreto: Asplund 13933 (S); Ll. Williams 3779 (S). BRAZIL: Amazonas: J. T. Baldwin 3227 (N); Fröes 25384 (N); Luetzelburg 21959 [Herb. Mus. Nac. Rio Janeiro 47678] (Ja), 21992 [Herb. Mus. Nac. Rio Janeiro 47687] (Ja), 22896 [Herb. Mus. Nac. Rio Janeiro 47676] (Ja); Spruce s.n. [in vicinibus Barra, Dec.-Mart. 1850-51] (S), s.n. [prope Barra, Prov. Rio Negro] (S). Bahia: Don s.n. (S); Glocker 52 (S); L. Riedel 366 (S); Salzmann s.n. [Bahia] (Br). Ceará: Drouet 2558 (S). Mattogrosso: Weddell 3426 (Br). Pará: Burchell 9468 (Br), 9555 (Br); Drouet 2044 (S); Murça Pires & Black 8 (Be--17025); Sampaio 5644 [Herb. Mus. Nac. Rio Janeiro 19105] (Ja). Rio de Janeiro: Brade & Santos Lima 11700 [Herb. Nac. Rio Janeiro 26711] (Ja); Rudolphi 42 (S); Sampaio 8145 [Herb. Mus. Nac. Rio Janeiro 47654] (Ja). State undetermined: Martius s.n. [Brazil] (S, S); Sellow 909 (S). LOCALITY OF COLLECTION UNDETERMINED: Dupuis s.n. (S); Herb. Alstroemer s.n. (S); Herb. Bommer s.n. [Guinea] (Br); Herb. Mus. Nac. Rio Janeiro no. prov. II (Ja); Herb. Reichenbach s.n. [Guiana] (Br); Swartz s.n. (S); Herb. Vahl s.n. (S).

ERIOCAULACEAE Lindl.

Literature: Kunth, Enum. Pl. 3: 492--493. 1841; H. H. Rusby, Comparison of English and German Works on the Genera of Plants 7. 1898; Luetzelburg, Estudo Botanico do Nordeste 147--151. 1923; A. Silveira, Flor. Montium [396]--420. 1928; Moldenke, North Am. Fl. 19: 17--50. 1937; Moldenke, Phytologia 1: 309--336 & 343. 1939; Moldenke, Carnegie Inst. Wash. Publ. 522: 139. 1940; Chron. Bot. 7: 362--363. 1943; Eyles & Robertson, U. S. Pub. Health Bull. 286: 106. 1944; M. B. & R. S. Foster, Brazil Orch. Trop. 212. 1945; Abbiatti, Rev. Mus. La Plata n.s. 6: 311--322. 1946; Moldenke, Phytologia 2: 152--153. 1946; Moldenke, Phytologia 2: 372--381. 1947; Moldenke, Phytologia 2: 490--499. 1948; W. H. & M. B. Duncan, Key Fam. Monocot. Southeast U. S. [2 & 3]. 1949; E. J. Alexander, Journ. N. Y. Bot. Gard. 50: 56. 1949; Barkley, Rev. Fac. Nac. Agron. Medellin 9 (33): 60. 1949; Moldenke, Phytologia 3: 141--144 & 178--180. 1949; Moldenke, Phytologia 3: 321 & 382. 1950; Meikle & Baldwin, Am. Journ. Bot. 39: 44--45. 1952; Santapau, Journ. Bombay Nat. Hist. Soc. 51: 214. 1952.

The Fosters in the book cited above make this interesting comment "If you have ever seen the little 'hatpins' in the Flor-

ida flatwoods and marshlands, you would be quite intrigued to find here in Brazil a 'hat pin' in size or shape to fit any style of hat, large or small. The greatest number of species in this family of Eriocaulaceae are native to South America, and Brazil certainly has its share. We had found them in many sections of the high rocky hills, but here seemed to be the greatest variety in one area. These little flowers are collected by the millions and shipped to the States as 'sempervivums', everlasting flowers. They look like miniature strawflowers and are dipped and dyed in many colors to be sold as an artificial decoration." The species to which he refers in the latter part of this quotation is Syngonanthus elegans (Körn.) Ruhl.

BLASTOCAULON Ruhl.

A synonym is Blastocaulum Ruhl. ex Alv. Silv., Gl. Mont. 274, sphalm. 1928.

BLASTOCAULON ALBIDUM (Gardn.) Ruhl.

Additional citations: BRAZIL: Minas Geraes: G. Gardner 5273 (S--isotype).

BLASTOCAULON RUPESTRE (Gardn.) Ruhl.

The Mexia 5780 collection cited below was originally distributed as Paepalanthus minutulus Mart., later re-determined as "Blastocaulon rupestris (Gardn.) Ruhl." A synonym is Syngonanthus rupestris (Gardn.) Ruhl.

Additional citations: BRAZIL: Minas Geraes: G. Gardner 5272 (S--isotype); Mello Barreto 10129 (N); Mexia 5779 (Gg--285360, N, S), 5780 (D--767072, N, S); Schwacke 8486 [Herb. Jard. Bot. Belo Horiz. 26666; Herb. Magalhães Gomes 2962] (N).

CARPTOTEPALA INSOLITA Moldenke

Additional citations: VENEZUELA: Bolívar: Steyermark 60703 (N--type, S--isotype).

COMANTHERA L. B. Sm.

Originally published in Contrib. Gray Herb. 117: 38. 1937.

COMANTHERA LINDERI L. B. Sm.

Originally published in Contrib. Gray Herb. 117: 38--39 & 44, pl. 2, figs. 55--60 (1937), based on Linder 40, from British Guiana, in the Gray Herbarium. The flowers of this genus are said to resemble closely those of Rondonanthus Herzog in being pedicellate and having free petals. These staminate flowers with a single stamen and greatly reduced perianth are unlike anything else in the family. The pistillate flowers are sessile, unlike those of Rondonanthus, but closely resembling those of Paepalanthus Mart.

ERIOCAULON Gron.

Literature: Kunth, Enum. Pl. 3: 539--540. 1841; Fyson, Journ.

Ind. Bot. 2: 133—149. 1919; Fyson, Journ. Ind. Bot. 2: 192—195, 261, 307—314. 1921; Moldenke, Carnegie Inst. Wash. Publ. 522: 140. 1940; Abbiatti, Rev. Mus. La Plata n.s. 6: 322. 1946; Moldenke, Phytologia 3: 180. 1949; Razi, Ecology 31: 285. 1950; Razi, Poona Univ. Journ., sci. sect. 1 (2): 6. 1952; Meikle & Baldwin, Am. Journ. Bot. 39: 45, 50, & 51. 1952.

Synonyms: Bussewillia Lesson in Bougainville, Journ. Navig. Autour Globe Frég. Thétis et Corv. l'Esperance, vol. 2 (1837); Busseuillia Lesson apud Van Steenis, Bull. Jard. Bot. Buitenz., ser. 3, 18: 460. 1950.

Razi in the first of the references cited above states that seed dissemination in this genus is epizoid, with alternative methods by formation of wings on the fruit or seed and in rain-wash, river or sea drift.

ERIOCAULON ACHITON Körn.

Fyson in Journ. Ind. Bot. 2: 202 & 204 (1921) cites this species from eastern Bengal and Bombay. He feels that it is derived from E. thwaitesii Körn., although Körnicke felt it was closest to what he called "E. truncatum Mart."

The Schmid specimen cited below may have had its label crossed with no. 81 cited under E. sexangulare L.

Additional citations: FRENCH INDOCHINA: Annam: Schmid 80 (N).

ERIOCAULON AFRICANUM Hochst.

Additional citations: SOUTHERN RHODESIA: Whellans 529 [Govt. Herb. Salisbury 34005] (N).

ERIOCAULON ALATUM H. Lecomte

The species is said by Brass to be abundant in wet grassy plains. The heads are brown and it has been collected in anthesis in September.

Additional citations: FRENCH INDOCHINA: Annam: Schmid 79a (N). Cochinchina: Pierre s.n. (N). NEW GUINEA: Papua: Brass 7821 (N), 7884 (N).

ERIOCAULON ALLEIZETTEI Moldenke

The species is said to inhabit wet places among siliceous rocks, at altitudes of 1400 to 1850 meters, blooming from May to July.

Additional citations: MADAGASCAR: Alleizette 124m (N—photo of type, P—type, Z—photo of type); Humbert & Swingle 4721 bis (P); Perrier de la Bâthie 7259 (N, P).

ERIOCAULON ALPESTRE Hook. f. & Thoms.

Literature: Körn. in Miq., Ann. Mus. Lugd.-Bat. 3: 163. 1867.

The type of this species was collected by Kieske, probably in Japan. The species is found at altitudes of 5000 to 12,000 feet.

Additional citations: INDIA: Assam: Hooker & Thomson s.n. [Mont. Khasia, 5-6000 ped.] (Br, M). Sikkim: J. D. Hooker s.n. [Sikkim, 8-12,000 ped.] (Br, C).

ERIOCAULON ANGUSTIFOLIUM Körn.

Additional citations: BRAZIL: Goyaz: G. Gardner 4382 [Macbride photos 10555] (N--photo of type, S--isotype).

ERIOCAULON APICULATUM H. Lecomte & Moldenke

The species is found in forests at altitudes of 40 to 100 meters, blooming in December and September.

Additional citations: MADAGASCAR: Bernier 79 (N--isotype, N--photo of type, P--type, Z--photo of type); Lam & Meeuse 5788 (Le-93970-63); Perrier de la Bâthie 7252 (N, P).

ERIOCAULON ARECHAVALETAE Herter

Literature: Castellanos, Lilloa 20: 238 & 244. 1949.

Additional citations: URUGUAY: Moldenke & Moldenke 19694 (Ss).

ERIOCAULON ARENICOLA Britton & Small

Additional citations: ISLA DE PINOS: Britton, Britton, & Wilson 14179 (S--isotype); Ekman 12029 (S).

ERIOCAULON ATABAPENSE Moldenke

One of the isotypes cited from the Britton Herbarium in Phytologia 3: 182 (1949) is now in the Cornell University herbarium (It). The A. C. Smith 2280 in the Britton Herbarium, cited on the same page as this species, proves to be E. tenuifolium Klotzsch instead. E. atabapense inhabits moist sand among rocks, blooming in October. Specimens of Maguire 29256 are said to be also in the Chicago, Kew, Belém, St. Louis, and Washington herbaria.

Additional citations: VENEZUELA: Amazonas: B. Maguire 29256 (N, Ve).

ERIOCAULON ATRATUM Körn.

Fyson, Journ. Ind. Bot. 2: 310 (1921) cites this species only from Adam's Peak, Ceylon. He illustrates it on his plate 26. The Kuntze 20046 and Thwaites 131 originally distributed as this are actually var. major Thwaites.

ERIOCAULON ATRATUM var. MAJOR Thwaites

A synonym is E. atratum var. minor Mart., based on the same collection. Var. major was published by Thwaites in his Enum. Pl. Zeyl. 1: 341 (1864). It has been collected at altitudes of 2200 to 2300 meters, blooming in February. The specimens cited below have been mis-identified as typical E. atratum Körn. and E. ceylanicum Körn.

Additional citations: CEYLON: Kuntze 20046 (N); Thwaites 131 (Br--isotype, N--photo of isotype, T--isotype, Z--photo of isotype).

ERIOCAULON AUSTRALE R. Br.

Kunth in his Enum. Pl. 3: 569 (1841) cites this to Brown's Prodromus page 254, the type collected at Port Jackson. Flecker

3603 was originally determined as E. spectabile F. Muell.

Additional citations: AUSTRALIA: Queensland: Flecker 3603 (Qu), 7063 (Qu); E. Henry 4654 (Qu); Shirley s.n. [Stradbroke Is.] (N).

ERIOCAULON BARBA-CAPRAE Fyson

This was originally published in Journ. Ind. Bot. 2: 197 (1921), based on a Collett collection from Shillong, Assam. The densely tufted linear leaves are black when dry. It is said to be very closely similar to E. mitophyllum Hook. f. and E. miserum Körn. from the same area, differing from the former in its "tall" instead of globose receptacle and from both in its black instead of white anthers. Fyson illustrates it on his plate 4.

ERIOCAULON BEAUVERDI Moldenke

The Scheidweiler collection cited below was originally identified as E. humboldtii Kunth. One of the Moldenke & Moldenke 19643 specimens cited in Phytologia 3: 183 (1949) from the Britton Herbarium (N) is now in the North Queensland Herbarium (Qu).

Additional citations: BRAZIL: São Paulo: Moldenke & Moldenke 19643 (B, Fy, Hw, Lm, Rs, Ss); Scheidweiler s.n. (Br).

ERIOCAULON BENTHAMII Kunth

Additional citations: MEXICO: Jalisco: Hartweg 258 (Br--isotype, N--photo of isotype, Z--photo of isotype). Michoacán: Barkley, Paxson, & Webster 2736 (N).

ERIOCAULON BIFISTULOSUM Van Heurck & Muell.-Arg.

A synonym is E. fluitans Griff. ex Moldenke, Known Geogr. Distrib. Memb. Erioc. 34, nom. nud. (1946); Known Geogr. Distrib. Memb. Verben. 126 & 204, nom. nud. 1949.

Wild in Rhodesia Agric. Journ. 49: 12--13 (1952) describes the species well and records the common name "water pipewort" or "water-pipewort". He illustrates it in his fig. 10, based on Dehn 769. He states that this is the only truly aquatic species of the genus in Rhodesia, being a floating plant with a long vertical submerged stem bearing many, slender, submerged, almost capillary, root-like leaves, and, at water-level, 6 to 20 narrowly spreading peduncles with black heads. Although widely distributed, he says it is not a common plant. Its numerous delicate leaves may have some value as food. The Baron specimen cited below was originally identified as E. melanocephalum Kunth, a species of the New World which this one very closely resembles.

Additional citations: MADAGASCAR: d'Alleizette 245m (P); Baron 926 (P); Decary 406 (N, P, P), 6256 (P); Le Myre de Vilers s.n. [Emyrne, février 1889] (P); Perrier de la Bâthie 7246 (P), 7247 (P); Waterlot 87 (P), 747 (P).

ERIOCAULON BREVIFOLIUM Klotzsch

Additional citations: BRITISH GUIANA: Schomburgk 107 [Macbride photos 25158] (N--photo of isotype, Z--photo of isotype).